

CLAIMS

1 (original): A lithium ion secondary battery comprising a positive electrode, a negative electrode and a solid electrolyte, said solid electrolyte being made in the form of a thin film comprising a lithium ion conductive inorganic substance.

2 (original): A lithium ion secondary battery as defined in claim 1 wherein said thin film solid electrolyte has thickness of $20\text{ }\mu\text{ m}$ or below.

3 (original): A lithium ion secondary battery as defined in claim 1 wherein said thin film solid electrolyte is formed directly on an electrode material or materials for the positive electrode and/or the negative electrode.

4 (original): A lithium ion secondary battery as defined in claim 1 wherein said thin film solid electrolyte has lithium ion conductivity of 10^{-5} Scm^{-1} or over.

5 (original): A lithium ion secondary battery as defined in claim 1 wherein said thin film solid electrolyte comprises the inorganic substance in an amount of 40 weight % or over.

6 (original): A lithium ion secondary battery as defined in claim 1 wherein said inorganic substance is a lithium ion conductive crystal.

7 (original): A lithium ion secondary battery as defined in claim 1 wherein said inorganic substance is a lithium ion conductive glass.

8 (original): A lithium ion secondary battery as defined in claim 1 wherein said inorganic substance is a lithium ion conductive glass-ceramic.

9 (original): (original): A lithium ion secondary battery as defined in claim 1 wherein said inorganic substance is powder of the inorganic substance.

10 (original): A lithium ion secondary battery as defined in claim 9 wherein said inorganic

substance powder is powder of a lithium ion conductive glass-ceramic.

11 (original): A lithium ion secondary battery as defined in claim 9 wherein an average particle diameter of the inorganic substance powder is 1.0 μ m or below.

12 (original): A lithium ion secondary battery as defined in claim 9 wherein said thin film solid electrolyte comprises a lithium ion conductive inorganic substance powder in a polymer medium.

13 (original): A lithium ion secondary battery as defined in claim 9 wherein said thin film solid electrolyte comprises a lithium inorganic salt and lithium ion conductive glass-ceramic powder in a polymer medium.

14 (original): A lithium ion secondary battery as defined in claim 3 wherein said thin film solid electrolyte is formed by direct coating on an electrode material or materials for the positive electrode and/or the negative electrode.

15 (original): A lithium ion secondary battery as defined in claim 3 wherein said thin film solid electrolyte is formed by crystallizing an amorphous layer which is formed by direct coating on an electrode material or materials for the positive electrode and/or the negative electrode.

16 (original): A lithium ion secondary battery as defined in claim 1 comprising a positive electrode, a negative electrode and a solid electrolyte wherein said positive and/or negative electrode comprises lithium ion conductive inorganic substance powder.

17 (original): A lithium ion secondary battery as defined in claim 16 wherein said inorganic substance powder in the positive and/or negative electrode has an average particle diameter of 3 μ m or below.

18 (original): A method for manufacturing a lithium ion secondary battery having a thin

film solid electrolyte comprising a lithium ion conductive inorganic substance comprising a step of forming the thin film solid electrolyte by coating the lithium ion conductive inorganic substance directly on an electrode material or materials for the positive and/or negative electrode.

19 (original): A method for manufacturing a lithium ion secondary battery as defined in claim 18 comprising a step of preparing slurry comprising the lithium ion conductive inorganic substance, and a step of forming the thin film solid electrolyte by coating the slurry directly on the electrode material or materials for the positive and/or negative electrode.

20 (original): A method for manufacturing a lithium ion secondary battery as defined in claim 18 comprising a step of coating the lithium ion conductive inorganic substance directly on the electrode material or materials for the positive and/or negative electrode to form an amorphous layer, and a step of forming the thin film solid electrolyte by crystallizing the amorphous layer.